

INTERNATIONAL CONGRESS ON TECHNICAL EDUCATION.

THE fourth meeting of the Congrès Internationale de l'Enseignement Technique, to be held this year in London, on the invitation of the Society of Arts and the Worshipful Companies of Mercers, Fishmongers, Drapers, Goldsmiths, Merchant Taylors, Vintners, Clothworkers, Leathersellers and Carpenters, will be opened on June 15 by an address from the President, the Duke of Devonshire, and from the President of the last Congress, Mr. Léo Saignat.

This meeting of Congress, the previous meetings of which were—in 1886 (at Bordeaux), in 1889 (at Paris), and in 1895 (at Bordeaux), appears likely, if one may judge of the interest it is exciting, to be a success.

Invitations were sent through our Foreign Office to Foreign Governments to appoint delegates, and up to the present notice has been received of the appointment, by Belgium, of M. Eugène Rombaut, Inspector-General of Industries and Professional Education, M. Wanters, Assistant Inspector, and Dr. Pyffersen, of the University of Gand, and, by France, of M. Félix Martel, Inspector-General of Public Instruction. Invitations have also been sent to the Technical Instruction Committees of County Councils, and other bodies and institutions interested in the subject, to appoint representatives, and have met with a hearty response; also to bodies and institutions abroad of a like character, in which case an equally satisfactory result is expected.

There are also a large number of persons who, by the payment of the modest subscription of 5s., have become members of the Congress, and as such are entitled to all the privileges of the Congress.

After the opening addresses, the Congress will break up into two Sections—the subjects to be discussed, which have reference only to advanced and secondary instruction, falling under the heads of Industrial and Commercial Education—to meet simultaneously from 11 to 1 and 2.30 to 5 each day; one at the Society of Arts, the other at the London School of Economics, until Friday, at 2.30, when there will be the concluding meeting of the combined Sections. The list of those who have up to the present promised papers, so far as this country is concerned, is decidedly a strong one, containing, as it does, the names of Sir J. Donnelly and Sir H. T. Wood, who will deal with the part taken by the Society of Arts in the matter of technical education; Dr. Wertheimer and Mr. Dixon, on subject of examinations; and Prof. Ayrton, Mr. Redgrave and Mr. Macan, on State and legislative interference; Sir J. Fitch, Prof. Thompson, Mr. Slingo and Mr. Turner, on reforms and limitations; Mr. Wells, on the training of teachers; Prof. Garnett, Mr. Hogg and Mr. Sachs, on training bodies; Dr. Armstrong and Dr. Gladstone, on chemical education; Mr. Ablett, on drawing; Mr. King and Mr. Swire Smith, on evening schools; and, on the commercial side, Dr. Wormell, Mr. Webb, Mr. Eve, Mr. Hewins, and Mr. Organ. Sir P. Magnus will speak on theory and practice in trade education, and there will be a series of papers from practical men on the subject of technical education as it affects particular industries and agriculture. There will be a joint Indian paper from Mr. Baines and Mr. Bhownaggee, and one each from seven of our colonies by a man of official position and educational experience in the colony to which the paper relates. The ladies will be represented by the Countess of Warwick, on rural districts; Miss Hughes, on technical education of girls and women; Miss Pycroft and Miss Mitchell, on domestic economy; and Miss Calder and Miss Walter, on domestic science.

The list of foreign papers is, as yet, far from complete; but amongst the contributors from abroad may be mentioned, in addition to those already referred to, Dr. Witt (of Berlin), Prof. Lunge (of Zürich), M. Siegfried

and M. Mesureur (of Paris), M. Ed. Séve (of Belgium). Arrangements are being made to enable our foreign visitors and others to become acquainted with the work being done in the matter of technical education, and also for their entertainment. Under the last head may be mentioned the evening reception at the Mansion House, on June 17 (to which the Lord Mayor has kindly invited the members of the Congress), the Society of Arts conversazione on June 16, and an excursion for foreign delegates to be arranged on June 19.

JAMES WYLLIE RODGER, A.R.C.S.

BY the death of J. W. Rodger a young life of great scientific promise has been cut short. He was born at Stewarton, N.B., on December 11, 1867, and was educated at Kilmarnock Academy, under Dr. Dickie, and at the Royal College of Science, London. His college career was interrupted by illness, but he won all the chief prizes, and took a very active part in the management of the college societies. In 1889 he was appointed assistant in the research laboratory, with the result that in the course of the next five or six years a number of papers were published, of which he was joint author with Dr. Thorpe. One of the most important of these, "On the relations between the viscosity of liquids and their chemical nature," was printed in the *Philosophical Transactions*, and was the subject of the Bakerian Lecture in 1894. By a kindly arrangement the lecture was delivered by the younger of the two authors, and no one who was present is likely to have forgotten how well Rodger acquitted himself of his task. It was an admirable piece of exposition. He spoke quickly, but with perfect distinctness; with modesty, but without apparent nervousness or hesitation. Every point was made clear, and at the end it was the general opinion that the Bakerian Lecture had rarely, if ever, been better given than by the youngest Bakerian Lecturer.

A continuation of the work on viscosity, by the same authors, appeared in the *Transactions* in March of the present year.

At the end of 1895 another important paper by Rodger and his friend, Mr. W. Watson, was also published in the *Transactions*. The subject was "The magnetic rotation of the plane of polarisation of light in carbon bisulphide and water."

In addition to these labours Rodger wrote often and well in *NATURE* and in *Science Progress*, chiefly choosing subjects connected with chemical physics.

Of singularly attractive appearance and manners, popular with his fellows, a good teacher, and a first-rate lecturer, he had done enough solid work to prove that, if life and health were spared, he would win an honourable place in the ranks of English science. But it was not to be. Some time ago serious delicacy of the chest developed, and ten days ago he died before completing his thirtieth year.

A. W. R.

NOTES.

AT the annual meeting for the election of Fellows of the Royal Society, held on Thursday last, the candidates whose names and qualifications we have already published (p. 54) were elected into the Society.

THE Vienna Academy of Sciences have elected as foreign members: Profs. Vogel and Bezold of Berlin, Prof. Gegenbaur of Heidelberg, Prof. Max Müller, and Lord Lister.

THE President and Council of the Royal Geographical Society will hold a reception at the Natural History Museum this evening.

THE French Association for the Advancement of Science will hold its twenty-sixth meeting at Saint Étienne on August 5-12, under the presidency of M. Marey.

MR. PERCY S. PILCHER has invited a number of friends and persons interested in aerial navigation to witness one of his experiments with a soaring machine at Upper Austin Lodge, Eynsford, Kent, on Saturday afternoon, June 19.

THE important discovery by two Japanese botanists, of the existence of spermatozooids in certain flowering plants (*Ginkgo biloba* and *Cycas revoluta*), has already been recorded in the pages of NATURE (vol. lv. p. 396). Original preparations, by Prof. Ikeno and Dr. Hirase, illustrating their discovery, will be exhibited by Dr. D. H. Scott, F.R.S., at the next meeting of the Linnean Society, on June 17. This will be the first occasion on which this remarkable observation, obliterating one of the chief supposed distinctions between Phanerogams and Cryptogams, has been demonstrated to European botanists.

THE annual meeting of the Iron and Steel Institute will be held at Cardiff on August 3-6, under the presidency of Mr. Edward P. Martin. A detailed programme will be issued when the arrangements are further advanced.

THE Croonian Lectures of the Royal College of Physicians will be given by Dr. Hale White, at the Examination Hall, on June 15, 17, 24, and 29. The subject of the lectures is "The means by which the temperature of the body is maintained in health and disease."

THE forty-second annual exhibition of the Royal Photographic Society will be held from September 27 to November 13. Negatives, transparencies, photo-mechanical prints, stereoscopic work, photographs of purely scientific interest, and photographs coloured by mechanical means will be admitted to the exhibition, and medals will be awarded by the Judges. Exhibits must reach the Secretary of the Society, 12 Hanover-square, London, W., on or before September 8.

WE regret to have to record the following deaths:—Dr. Julius von Sachs, Professor of Botany in Wurzburg University, and Foreign Member of the Royal Society; M. Slouguinoff, Director of the Physical Institute of the Imperial University of Kazan; Mr. H. B. Chamberlin, who presented the Chamberlin Observatory to Denver University, and in other ways assisted in the advancement of science; Mr. William Godward, formerly of the Nautical Almanac Office, and author of some useful astronomical tables; M. Manen, Correspondant of the Section of Geography and Navigation of the Paris Academy of Sciences; and Baron Oscar Dickson, who fitted out several Arctic expeditions, including the Vega expedition of Baron Nordenskiöld.

THE organisation and federation of local scientific societies is a work well worth doing. Prof. Meldola pointed out in these columns a year ago (vol. liv. p. 114) how science would be better served if the efforts of the legion of amateur naturalists were co-ordinated by the formation of groups of societies. The South-eastern Union of Scientific Societies is a group of this character, and the success of the congress which the Union held at Tunbridge Wells towards the end of last month, under the presidency of the Rev. T. R. R. Stebbing, F.R.S., will, we hope and believe, lead to the federation of other local societies. The societies which have joined the Union are almost exclusively natural history societies. They are friendly to philosophy and literature, to mathematics and chemistry, to agriculture and political economy, to astronomy and the use of the globes; but they find their own more special and serious employment in zoology, botany, and geology. What the British Association does on an imperial scale, the Union hopes to do for a limited area. The pursuit of natural knowledge will thus be encouraged,

the results of investigations will be made more widely known, and, best of all, public opinion will be enlightened as to the value of scientific work.

NOTHING is worse than fog at sea. A storm may cause discomfort, an accident may cause delay, but in neither case does the traveller feel so helpless as when his vessel is completely shut in by a dense fog. To lessen the danger which then exists, Prof. E. C. Pickering, the Director of the Harvard College Observatory, suggests, in a pamphlet just received, a method of determining the position of a vessel in a fog, based upon the velocity of sound. If two fog-horns of different pitch be placed at equal distances from the middle of a channel or entrance to a harbour, and be sounded simultaneously at regular intervals of about a minute, it will be evident that a captain of a vessel will be able to locate his position with fair accuracy by noting when the sounds of the horns are heard. If the two sounds are heard at the same instant the vessel will be in the middle of the channel, and if they are heard after one another it would be possible to judge from the interval between the two how much the vessel is out of the middle of the channel. For vessels passing one another, Prof. Pickering suggests that each should whistle or blow the horn or syren as soon as the sound is received from the other vessel. Then, if they are five miles apart, each will whistle every fifty seconds, and the distance in miles between the two vessels can always be determined by dividing the interval in seconds by ten. By placing two different fog-whistles on a long steamer, one at the bow and the other at the stern, and arranging that the sounds emitted by both should be heard together by an observer standing at the bow, many collisions might be prevented. Instructions could be given to sailing vessels to keep quiet so long as both signals were heard separately, for they would then be in no danger, but to fire a gun or make other loud noise when both whistles were heard together, for they would then be in front of the steamer. These various methods may be combined indefinitely, and they seem to be worth the consideration of navigators.

AN appeal is being made to iron-masters of the various important iron-making countries for annual subscriptions towards the maintenance of a central laboratory for the testing of iron and steel, to be founded at Zürich under the auspices of the International Society for Testing of Materials of Construction. The Society was founded at a congress held at Zürich in 1895, and none of the tasks which it has imposed upon itself are of greater importance, while none present greater difficulties, than the unification of the methods for the chemical analysis of iron and steel. Efforts have been made in several countries for some years past to lay the foundations of a better knowledge of this subject. But whilst to the fullest extent recognising the very great value of the work already done locally, the Council of the International Society decidedly believes that the work hitherto done in many isolated places should be brought, together in a common focus where it would be classified, compared, and reduced to a common standard. Such a central laboratory would also have the task of following the progress of both industry and science, of examining all new methods of any importance brought forward in various quarters, of searching for new methods whenever new problems were presented, and of serving as a guide to the individual chemists when they were beset by the difficulties inseparable from their avocation. Zürich has been chosen as the seat of the institution; and ample accommodation has been secured in the magnificent chemical laboratory of the Federal Polytechnic School. The Federal Council has granted the use of these rooms, free of rent, for the projected central laboratory. Hans von Jüptner, chief chemist of the Neuberg Iron and Steel Works in Austria, has been appointed as the head of the laboratory. 2000*l.* per annum is

required for the maintenance of the laboratory, and it would be impossible to start the laboratory unless this amount was secured for, say, ten years. Looking at the immense importance such a central laboratory is likely to acquire for the whole of the iron industry, and the very large pecuniary benefit ultimately following therefrom, there should not be much difficulty in obtaining promises of subscriptions to the amount required. Mr. Bennett H. Brough, the Secretary of the Iron and Steel Institute, has undertaken to receive subscriptions, and to forward them to the International Society.

For a period of about eight years a portion of the staff of the Meteorological Office has been busily engaged in the discussion of observations for the preparation of Monthly Current Charts of the Atlantic Ocean. The observations are contained in about 5500 logs, principally of merchant vessels, collected by the Meteorological Office since the year 1854, and about 13,000 logs kept on board H.M. ships since 1830. The charts for six representative months, referring both to the North and South Atlantic, have been prepared for publication under the superintendence of the Hydrographer of the Admiralty, and are issued in the form of Admiralty charts. They bring to light various interesting points which are masked by charts referring to longer periods; for instance, the Gulf Stream, from which this country is supposed to derive much of its warmth in winter, is shown to flow with varying velocity according to the season, the rate being about 100 miles a day in June, in the Straits of Florida, while in October and November it does not exceed 70 miles a day, and at times only amounts to about 20 miles; and the Guinea and equatorial currents are shown to undergo considerable variations according to the time of the year. Generally speaking, the oceanic circulation can now be studied in a manner that was not possible before the publication of monthly charts, and the results cannot but prove to be of the greatest utility both to seamen and men of science.

MR. H. C. RUSSELL, Government Astronomer of New South Wales, has published, in a recent number of the *Proceedings* of the Royal Society of that colony, a chart showing the tracts of 154 current papers collected during the past two years. The lines plotted on the chart are the shortest tracks between the points where the bottles were thrown into the sea and where they were found. The routes taken by the bottles are interesting: most of them were found on the coast between Melbourne and Adelaide; fifteen were picked up on the east coast of Australia—three of these went to the south, eight went to the north, and four came in from the east. Mr. Russell remarks that, in view of the well-known southerly current on this coast, it is remarkable that so few of the papers seem to go with it, and that the majority of the papers found go against it. The prevailing wind seems to have a decided action in the direction of the drift of the bottles. Three papers, thrown overboard off Cape Horn, followed nearly the same tracks; one was picked up on the west coast of Australia, and the others on the coast of Victoria: their daily rates, over a distance of about 9000 miles, being 9.0 miles, 7.9 miles, and 10.3 miles respectively.

AN interesting collection of prehistoric flint instruments which Mr. H. W. Seton-Karr discovered in Egypt last November, and which he believes to come from the lost flint mines of Egypt, was recently exhibited by him at the Royal Archaeological Institute. The collection also included a number of specimens of what Mr. Seton-Karr considers to be the most perfectly preserved palæoliths hitherto discovered. The flint mines are situated in the Eastern Desert of Egypt, some at a distance of about 30 miles from the Nile, some nearer, in the Wady-el-Sheik district. Of palæolithic implements of the earliest date he found but two at the mines. The remainder came from Abydos,

Nagada, Nakh Hamadi, Thebes, and other places in the Western Desert. At some of the mines were shafts about 2 feet in diameter, filled up with drifted sand, and surrounded by masses of excavated rock neatly arranged. There was usually a central work-place where most of the objects were discovered. But in some mines a number of clubs or truncheons lay distributed uniformly, as though hurriedly left when the mines were last abandoned, at a period probably long anterior to historic record. The results of Mr. Seton-Karr's sixth and latest expedition were shown in the implements of flint and quartzite from Somaliland. With respect to these discoveries, Sir John Evans remarked in a communication made to the Royal Society, that they "have an important bearing on the question of the original home of the human race. Of their identity in form with some from the valley of the Somme and other places there can be no doubt, and we need not hesitate in claiming them as palæolithic. The cradle of the human race must have been situated in some part of the world where the climate was genial and means of subsistence readily obtained."

It is depressing to think that there exist not only private persons, but public bodies who put more trust in the wild assertions of charlatans than in the matured conclusions of science. The latest instance of gullibility of this character comes from Bedfordshire. The Urban District Council of Ampthill were ordered by the Local Government Board to procure a water supply within a limited time, the Council being given a free hand how to go to work, and they thereupon unanimously resolved to employ a water diviner. Accepting the recommendations of this gifted gentleman, the District Council applied for a loan to carry them out. But, fortunately for common-sense, when the Government auditor recently sat to audit the accounts of the Urban District Council of Ampthill, several ratepayers raised objections to an expenditure incurred in the employment of the water diviner. They produced geological plans and sections to show that, if the diviner's recommendations were acted on, the Council would be boring into a stratum of Oxford clay, the depth of which had not been fathomed as yet, although a boring had been made to 700 feet, and no water obtained. The auditor, in announcing his decision to disallow the payment, stated that in seeking for water the District Council had disregarded the reports of experts, and had gone for guidance to a man who had a reputation for discovering water by some unusual and peculiar method not possible to ordinary persons, and the question he had to settle was whether this was legal or not. Money might properly be spent on experimental borings under proper advice, but it had not been proved that the diviner employed had any greater power than any one else. It had been held that "the pretence of power, whether moral, physical, or supernatural, with intent to obtain money, was sufficient to constitute an offence within the meaning of the law," and he, therefore, thought that, as the diviner claimed to exercise some such power, his employment was clearly illegal, and the amount of his fee would, therefore, be disallowed, and the gentlemen who authorised the payment surcharged with it. The decision will assist, perhaps, in reducing the number of believers in the water diviner's art.

FOR those men of science who may be induced to travel over Siberia, now that they can do it by rail, we notice that a new interesting museum is being opened at Chita, the chief town of Transbaikalia, in connection with the Transbaikalian Section of the Russian Geographical Society. Rich collections relative to Buryat buddhism, and good collections of objects belonging to natural sciences, archaeology, and occurrence of gold in mines, rapidly accumulate in that new little museum, to which a botanical garden is to be annexed.

THIS year's exhibition of the Russian Archæological Commission at St. Petersburg, containing the collections made in the years 1895 and 1896, offers a special interest. Besides a great number of most valuable classical antiquities discovered at the sites of old Greek colonies on the Black Sea, it contains very interesting collections of stone-age implements and pottery from Kieff, Tiflis, and Poland; of the intermediate age between the stone and the bronze period from various parts of Central Russia; and very rich collections of bronze weapons and implements from Caucasia, Saratoff (a splendid bronze helmet), Tomsk, and Veinseisk. Among these latter the miniature copies of various implements of that period deserve a special mention.

THE last number of the *Journal of the Russian Physical and Chemical Society* (xxix. 3) contains an obituary notice, devoted to the memory of Dr. Véra Bogdanovskaya-Popoff, who was killed on May 8 in her own laboratory at Izhora, by an explosion. She had been working to obtain a combination, analogous to prussic acid, in which nitrogen would be substituted by phosphorus. When Mlle. Bogdanovskaya came to Geneva, in 1890, to study under Prof. Groebe, she intended to carry on that investigation, but was dissuaded by Prof. Groebe, and made, instead, a research on dibenzyl ketone (*Chemische Berichte*, xxv., 1892), for which she received at Geneva the degree of Doctor of Sciences. Returning to Russia in 1892, she was assistant to Prof. Lvoff, at the High Courses for Ladies, and devoted much of her time to aid the beginners in grasping the principles of chemistry. She lectured also upon stereo-chemistry, which she had studied under Prof. Guye; and finally, in her own laboratory in the neighbourhood of St. Petersburg, returned to the work on the phosphorus analogues of prussic acid. She fell a victim of an explosion which took place during that dangerous investigation.

AMONG recent American botanical papers received are "New Studies upon the Smut of Wheat, Oats, and Barley," issued from the Government Agricultural Experiment Station for North Dakota; and the completion of Dr. Millspaugh's "Contributions to the Coastal and Plain Flora of Yucatan," published by the Field Columbian Museum.

THE Deutsche Seewarte has just issued a volume entitled "Segelhandbuch" for the Pacific Ocean, intended to accompany the Atlas of Charts for that ocean, which appeared some time ago. The work is divided into a large number of chapters, written by the staff of the Seewarte and other experts, and contains the results of experience gained by the discussion of an immense number of trustworthy observations, mostly made on board German vessels, relating both to air and sea. The Seewarte has now issued these useful atlases and handbooks for all the large oceans.

IN a recent number of the *Proceedings* of the Boston Society of Natural History Mr. Gerrit S. Miller, jun., gives an account of the mammals of Ontario, based on collections made in different parts of that province in 1896. To these are added notes on the same subject, made by Mr. Allan C. Brooks during ten years' residence in the counties of Wellington and Hamilton. While we fully allow that science is cosmopolitan, it could be well wished that our Canadian friends would pay a little more attention to the fauna of their own country, and not suffer it to be entirely in the hands of their more active brethren of the United States. We trust that the proposed establishment of a Professorship of Zoology at McGill University, Montreal, may have a good effect in this direction.

THE last number of the *Annali d'Igiene Sperimentale* contains a paper by Dr. Massone, on the presence of tubercle bacilli in the milk supplied in Genoa. Forty-four different samples of milk were collected, and were submitted to a careful microscopic

examination, but in no case were tubercle bacilli discovered. When, however, the further test was employed of first submitting the various milk samples to the centrifugal machine, and then inoculating the layer of cream and the deposit thus obtained into guinea-pigs, three out of the forty-four samples were found to contain tubercle bacilli, for three of the animals thus treated succumbed to tuberculous infection. Dr. Massone points out how important it is that all tests of milk for tubercle bacilli should be made by direct inoculations into animals, as no trust can be placed on microscopic evidence as to the freedom of milk from this species of infection. In conclusion the author emphasises once more the inconsistency which attends the severe restrictions imposed in many places upon the sale of meat obtained from tuberculous animals, whilst no attention is paid, or public importance attached, to the prevention of milk being distributed infected with these noxious germs. In the former case, owing to the meat being cooked before use, less danger attaches to its consumption, whilst the unfortunate custom which prevails of drinking milk in its raw unsterilised condition, renders the use of contaminated milk a greater menace even to the health of the community than the distribution of tuberculous meat.

EVERYTHING concerning the Island of Jamaica, from its discovery by Columbus in 1494 to the present time, will be found in the admirable "Handbook of Jamaica," published by authority (Mr. Edward Stanford is the London agent), and prepared by Mr. S. P. Musson and Mr. T. L. Roxburgh. At the end of the chronological history of the island, reference is made to the publication of Prof. Williams' report on the cattle disease in Jamaica. The conclusion arrived at is that the disease "is a chronic form of Texan fever conveyed from place to place and transmitted from one animal to another through the intervention of the Tick. The infection is conveyed by the progeny of Ticks which have matured on infected cattle, and is inoculated by them directly into the blood of susceptible cattle." Remedies for the destruction of the Tick are suggested in the report.

THE New Zealand Institute has just commenced to publish, in quarto form, a series of reproductions of photographs of the remaining monuments of Maori skill and art, with short descriptions of the specimens figured. The author of this important descriptive work, Mr. Augustus Hamilton, Registrar of the University of Otago, has, with his camera, visited many outlying parts of Maoriland with great enterprise and success. The pictures obtained by him have been photographically reproduced in extremely fine tone; so that the complete collection will preserve for the ages the characteristics of the ornamentation of the Maoris, when the "devouring tooth of time" has obliterated the originals. It is hardly necessary to explain to readers of NATURE that a publication of this character is of the highest value. The first part, which has just been issued, describes the canoes of the Maoris and the carvings upon them; this, with four other parts illustrating the dwellings, weapons, dress and decoration, and social life, will complete a volume. It is expected that Part ii. will be ready next August.

IN the Catalogue of the Vienna Exchange Office for Cryptogamic Plants, conducted by Herr J. Brunnthaler, Igelgasse 11, Vienna, iv/2, are offered for exchange or sale some 600 Mosses, 140 Hepatics, 940 Fungi, 580 Lichens, 690 Algæ, and 48 microscope slides. The value attached to every specimen is expressed in the units (twentieths of a shilling) adopted for convenience of exchange, the valuation depending on the quality and rarity of the specimen. Numerous regulations are given as to the condition, preparation, and labelling of specimens sent for exchange to the Office. Lists of such specimens as can be supplied for exchange must reach the office by September 15. From the parcels subsequently sent in a deduction of 25 per cent. of the

total value is made for the benefit of the Office. The valuation of European plants is settled by the director, who is willing to receive Vascular Cryptogams and Bacteria in addition to the groups mentioned above. Descriptions of some new species of Fungi are published in the current Catalogue.

DR. RICHARD HERTWIG'S "Lehrbuch der Zoologie," which was reviewed in NATURE in June 1893 (vol. xlviii. p. 173), has reached a fourth edition. The section on the Sporozoa has been revised, and some additions have been made in the section on the Vertebrates. The work is published by Gustav Fischer, Jena.—Messrs. Blackie and Son have published what is nominally a fourth edition of Mr. Jerome Harrison's "Text-Book of Geology"; but the additions and changes are so numerous that the work is practically a new one, the type having been entirely re-set. The book is "intended as an introduction to the study of rocks and their contents," and it will, we believe, be the means of adding to the number of outdoor students of geology, notwithstanding the fact that it belongs to the class of examinational text-books. The text is clearly printed, and the illustrations are numerous and generally instructive.—Messrs. J. and A. Churchill have published the second edition of "A Manual of Botany," by Prof. J. Reynolds Green, F.R.S. Very few changes have been made in the work.

WE have upon our table a number of important geological memoirs and reports lately published. Geologists will be glad to have their attention drawn to these publications. From the Geological Survey of India we have received the first memoir of a new series (Series xvi.) of the Palæontologia Indica, intended to comprise a description of the fossils found in Baluchistan. The first part of the new series comprises the Jurassic Fauna of Baluchistan, and in the present memoir, Dr. Fritz Noetling deals with the fauna of the Kellaways of Mazâr Drik. The geology of the Bellary district, Madras Presidency, is described by Mr. R. Bruce Foot in vol. xxv. of the memoirs of the Survey; and the geology of Hazara and the Black Mountain is dealt with by Mr. C. S. Middlemiss in vol. xxvi. of the same memoirs. Both of these papers are full of details referring to the geology of the district surveyed by the authors, and each of them throws light upon problems of more than local interest.

A REPORT on explorations in the Labrador Peninsula along the East Main, Koksoak, Hamilton, Manicuan, and portions of other rivers, made by Mr. A. P. Low in 1892-95, has been published by the Geological Survey of Canada (Part i., Annual Report, vol. viii.). This is an interesting account of exploration, containing much new information in regard to the geology and natural history of the Labrador Peninsula. A concise and readable summary of the observations made, and the conclusions reached from them, takes up one part of the report, and the remainder consists of detailed descriptions of the routes, the rocks noted, and other observations for the use of future explorers in the region traversed. Lists and notes on the fauna and flora of Labrador, and a meteorological record are printed as appendices to the report. We have also received Part R of the same annual report (vol. viii.) containing an account of the work carried out in the Laboratory of the Survey during 1896, by Dr. G. C. Hoffmann. In this report reference is made to several interesting and, in some instances, valuable minerals, not before known in Canada. Two other recent publications of the Geological Survey of Canada are: "Report on the Country between Athabasca Lake and Churchill River," by Mr. J. Burr Tyrrell, assisted by Mr. D. B. Dowling; and "Palæozoic Fossils," by Mr. J. F. Whiteaves. The latter paper is the third part of the third volume on Palæozoic Fossils now in course of publication by the Canadian Survey.

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THE twenty-second and twenty-third annual reports of the Geological and Natural History Survey of Minnesota, referring to the work done during 1893-94, have been received from the State Geologist, Mr. N. H. Winchell. The latter report contains a paper by Mr. Winchell on "The Origin of the Archean Greenstones." The paper is a critical examination of a paper by Dr. G. H. Williams, tending to the conclusion that the greenstones, as a body, may be referred to dynamic metamorphism of massive eruptive rocks. Mr. Winchell believes "that the great bulk of the 'greenstones' as an Archean terrane, ought to be classified as pyro-clastic, *i.e.* that they originated from eruptive agencies, as tuff and all kinds of volcanic débris, sometimes very coarse, and were distributed and somewhat stratified by the waters of the ocean into which the materials fell."

THE additions to the Zoological Society's Gardens during the past week include two Vervet Monkeys (*Cercopithecusalandii*, ♂ ♀), two Crested Porcupines (*Hystrix cristata*) from South Africa, presented by Mr. J. E. Matcham; a Brown Bear (*Ursus arctos*), European, presented by Mr. William Forbes; a Black-necked Grackle (*Gracupica nigricollis*) from China, presented by Mr. B. H. Jones; a Ring-necked Parrakeet (*Palæornis torquata*) from India, presented by Mrs. Doyne; five Common Chameleons (*Chamaleon vulgaris*) from Egypt, presented by Dixon Bey; a Ring-tailed Lemur (*Lemur catta*), two Black-headed Lemurs (*Lemur brunneus*) from Madagascar, two Korin Gazelles (*Gazella rufifrons*, ♂ ♀) from Senegal, a Fennec Fox (*Canis cerdo*), six Egyptian Foxes (*Canis niloticus*), a Pale Genet (*Genetta senegalensis*), three Leith's Tortoises (*Testudo leithi*) from Egypt, a Harnessed Antelope (*Tragelaphus scriptus*, ♀) from West Africa, deposited; a Californian Sea Lion (*Otaria californiana*, ♀) from the North Pacific Ocean, two Ostriches (*Struthio camelus*, ♂ ♀) from Africa, purchased; a Long-legged Jackal (*Canis variegatus*) from North-east Africa, three North African Jackals (*Canis anthus*), a Striped Hyæna (*Hyæna striata*) from Egypt, received in exchange; an Eland (*Orias canna*, ♂), a Patagonian Cavy (*Dolichotis patachonica*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

THE LATITUDE OF THE ROYAL CATANIA OBSERVATORY.—The Italian Royal Geodetical Commission have just published a detailed account of the determination of the latitude of the Royal Astronomical Observatory of Catania by Dr. T. Zona, of the Royal Observatory of Palermo. All the observations were made during the year 1894, and the method adopted was that of Talcott. The pairs of stars used amounted to twenty-three in number, and their places were obtained from each of the three separate catalogues, viz. Respighi, Bradley-Auwers, and the British Association Ten-Year.

Dr. Zona has not attempted to amalgamate the positions of each star as given by the three separate catalogues, by using a mean value, but has preferred to determine three values for the latitude, basing each on the separate catalogue star positions for the pair employed.

In this way computation has given for the final values of the latitude, based on the star positions of each catalogue, the following results:—

Respighi	...	...	37° 30' 13"·239 ± 0"·115
Bradley-Auwers	...	...	13'·216 ± 0"·132
Ten-Year	...	...	13'·302 ± 0"·108

The final value adopted for the latitude of the transit instrument of the observatory was

$$37^{\circ}30'13''\cdot254 \pm 0''\cdot068.$$

PHYSICAL AND MICROMETRICAL OBSERVATIONS OF VENUS.—The amount of detail visible on the disc of Venus is not so very prominent, according to the observations recently recorded by Prof. Barnard (*Astrophysical Journal*, vol. v. No. 5). Those observers who up to the present time have only made out dusky